

DCCP Users Guide

draft-ietf-dccp-user-guide-00.txt

Damon Lanphear

damonlan@real.com

DCCP Working Group

November 21, 2002

Atlanta IETF

Rationale for a Users Guide

- Working group charter calls for a document that will provide guidance to potential users of DCCP.
- Develop a formal document to:
 - Collect application layer requirements of DCCP.
 - Describe approaches to implementation problems.
 - Discuss API design choices.
 - Map out potential API semantics.

Current State of the Document

- Still an initial draft.
- Considerable number of open issues, and items pending completion.
- Need determination of specifics of the document scope.
 - This should be guided by the needs presented by the working group, et al.

Document Scope

- Text is informative, discussion of application layer considerations is provided as a reference point.
- Guidance for API design efforts.
- Implementation discussion should facilitate the development of best practices for DCCP implementation.

Considerations for Target Applications

- DCCP was designed with a specific subset of network applications in mind.
- Implementations should take into account the needs of overlying applications through the way in which they expose the features and semantics of DCCP.
- Gathering an awareness of application layer issues bolsters the development of useful implementations.

Example: Real time media applications

- The post network buffer and rate control.
 - Real time media applications may need to employ rate control to manage occupation of buffer.
- Selective transmission and retransmission.
 - End-to-end delay has an impact on transmission and retransmission policies employed by application.
- Latency requirements.

Open Issues: Application Considerations

- Broader information needed for application considerations:
 - IP telephony.
 - Unicast multimedia conferencing.
 - Games.
 - Other perspectives on streaming media.
- Should application be able to elect default drop behavior for move event?

API Considerations

- Enumeration of configuration issues:
 - That are specific to DCCP.
 - That are open to interpretation by an implementation/API.
- Discussion of impacts made on API design by:
 - Connection establishment and termination.
 - Feature negotiation.
- Other topics pending...

Open Issues: API Considerations

- Loss signaling to application layer
 - Should a DCCP API map DCCP's notion of datagram loss to the application layer?
 - If so, then what are appropriate generalizations to make about this process?
- Kernel/User API
 - How specific should this discussion be?
 - How limited to existing paradigms should it be?

Implementation Considerations

- Connection State:
 - May need to notify applications that user data appended to DCCP-Request requires retransmission.
- Provision of sequence number and loss data to application:
 - Should the DCCP sequence number space be made available to the application layer to avoid redundant data in application layer framing protocols.
- Supporting application feature preference.

Open Issues: Implementation Considerations

- Provision of sequence number and loss data to application:
 - Must consider frequency of communication across k/u boundary.
 - May have to cope with redundant information in application layer framing protocol (e.g. RTP).
- Probabilistic verification of loss rate using ECN for TFRC.
- Application specification of slow receiver behavior.

Please Contribute Your Ideas!

- This document would benefit from authors willing to contribute in the following areas:
 - Considerations for other application domains.
 - Perspectives gained through implementation efforts.
 - Novel approaches to an API design.
- Broader perspectives on the document will bolster its applicability.

dccp-request@ietf.org